APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/567,716	02/08/2006	Joseph Arthur Reed	PU030242	4027

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EXAMINER
BOWMAN, MARY ELLEN

ART UNIT	PAPER NUMBER
4174	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
	10/567,716	REED, JOSEPH ARTHUR
Office Action Summary	Examiner	Art Unit	
	MARY ELLEN BOWMAN	4174	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>08 February 2006</u>.
2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>1-14</u> is/are pending in the application.
   4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) <u>1-14</u> is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☒ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on <u>08 February 2006</u> is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All   b) ☐ Some * c) ☐ None of:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____.
      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date <u>02/08/2006</u>.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____

DETAILED ACTION

Priority

1.   Applicant's claim for the benefit of a prior-filed application under 35 U.S.C. 119(e) or

under 35 U.S.C. 120, 121, or 365(c) is acknowledged. Applicant has not complied with one or

more conditions for receiving the benefit of an earlier filing date under 35 U.S.C. 120 as follows:

Applicant has claimed the benefit of prior-filed application No. 09/797,229, filed March 1, 2001,

however applicant has failed to specify the relationship between the current application and the

prior filed application. The current application appears to be a Continuation in Part of the prior

filed application. Applicant is required to amend the specification to include the relationship

between the current and prior filed applications in order to receive the benefit of the earlier filing

date.

Information Disclosure Statement

2.   The information disclosure statement (IDS) submitted on 02/08/2006 was considered by

the examiner.

Specification

3.   The disclosure is objected to because of the following informalities: The first sentence of

the specification states that the International Application PCT/US03/26029 was filed August 20,

2006. Said application was actually filed August 20, 2003.

         Appropriate correction is required.

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

5.   Claims 1-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ragland,

WO 00/60635, published October 12, 2000 (hereinafter referred to as "Ragland") in view of

Suzuki.

6.   Regarding claims 1 and 10, Ragland teaches a cathode-ray tube (CRT) (e.g., page 2, line

1; "a color picture tube 10") having a glass envelope (e.g., page 2, line 1; "a glass envelope 11")

defined by a faceplate panel (e.g., page 2, lines 1-2; "a rectangular faceplate panel 12") and a

tubular neck (e.g., page 2, line 2; "a tubular neck 14"), a three-color phosphor screen formed on

an inner surface of the faceplate panel (e.g., page 2, lines 5-6; "a three-color phosphor screen 22

is carried by the inner surface of the faceplate 18") and an electron gun positioned in the tubular

neck and facing the phosphor screen (e.g., page 2, lines 9-12; "an electron gun 26…is centrally

mounted within the neck 14 to generate…electron beams…through the mask 24 to the screen

22"), comprising: a tension mask (e.g., page 2, line 8; "a color selection tension mask 24")

configured for transverse scan (e.g., page 2, lines 13-16; "the tube 10 is designed to be used with

an external magnetic deflection yoke…the yoke 30 subjects the three beams to magnetic fields

which cause the beams to scan horizontally and vertically [i.e. transverse scan] in a rectangular

raster over the screen 22") affixed to a peripheral frame (e.g., page 2, lines 27-29; "a frame 50,

for use with the tension shadow mask 24...includes four sides: two long sides 52...and two short

sides 54"), wherein the tension mask has a center portion and edge portions proximate opposing

ends of the tension mask (Note: The mask is rectangular in shape, as taught by the two short

sides and two long sides, and therefore necessarily has central and peripheral portions.).

7.   Ragland fails to teach a difference between the central and peripheral frequencies.

8.   Suzuki teaches the edge portions having peripheral frequency distributions (e.g., [0014];

"the amplitude in the end portions of the shadow mask") and the center portion having a central

frequency distribution (e.g., [0014]; "the amplitude in the center portion of the shadow mask"),

wherein the central frequency distribution is greater than the peripheral frequency distributions to

improve vibrational damping of the mask (e.g., [0043] and [0044]; "an inequality (1) below

preferably is satisfied, $\sigma 1 \geq 1.1 \sigma 2$...[for example] the tension stress $\sigma 1$ at the center portion is

140% of the tension stress $\sigma 2$ at the end portions"; Note: Application of the well known scientific

principal, frequency is proportional to the square root of tension, results in the teaching that the

frequency at the center of the mask is greater than the frequency at the edge of the mask by a

factor of the square root of 1.4. See MPEP 2144).

9.   It would have been obvious to one of ordinary skill in the art at the time the invention

was made to vary the tension in the mask in order to very the frequency of the mask, because the

frequency variation serves to decrease vibration within the mask (Suzuki: [0016]; "by having

such a distribution of tension, the maximum value of displacement of the shadow mask due to its

vibration can be decreased"). Decreasing the vibration within the mask increases picture quality

and makes the cathode ray tube more suitable for commercial use. Thus, reconstruction is

desirable as taught by the prior art references.

10.   Regarding claims 6 and 12, Ragland teaches a tension mask (e.g., page 2, line 8; "a color selection tension mask 24") for a cathode-ray tube (CRT) (e.g., page 2, line 1; "a color picture tube 10") comprising: a peripheral frame (e.g., page 2, lines 27-29; "a frame 50, for use with the tension shadow mask 24...includes four sides: two long sides 52...and two short sides 54"); a tension mask configured for transverse scan (e.g., page 2, lines 13-16; "the tube 10 is designed to be used with an external magnetic deflection yoke...the yoke 30 subjects the three beams to magnetic fields which cause the beams to scan horizontally and vertically [i.e. transverse scan] in a rectangular raster over the screen 22") affixed to the peripheral frame and having a center portion and edge portions, the edge portions proximate two opposing ends of the tension mask (Note: The mask is rectangular in shape, as taught by the two short sides and two long sides, and therefore necessarily has central and peripheral portions.). Ragland further teaches the frequency of the mask (e.g., page 1, lines 32-33; "the frame tensions the mask to have a fundamental resonant frequency of 90 Hz ± 20 Hz").

11.   Ragland fails to teach the variation in frequency between the center and peripheral portions of the mask.

12.   Suzuki teaches the center portion having a central frequency distribution, the edge portions having peripheral frequency distributions wherein the central frequency distribution is greater than the peripheral frequency distributions (e.g., [0043] and [0044]; "an inequality (1) below preferably is satisfied, σ1 ≥ 1.1σ2...[for example] the tension stress σ1 at the center portion is 140% of the tension stress σ2 at the end portions"; Note: Application of the well known scientific principal, frequency is proportional to the square root of tension, results in the teaching that the frequency at the center of the mask is greater than the frequency at the edge of

the mask by a factor of the square root of 1.4. See MPEP 2144) and the frequency distribution

from the edge portions to the center portion is represented by a parabolic formula (e.g., Fig. 6

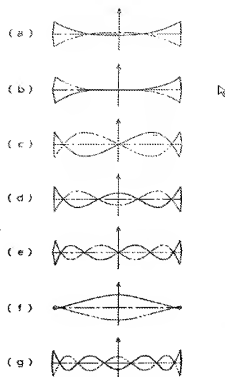below, demonstrating the various frequency patterns from the center of the mask to the edges)

(a)

(b)

(c)

(d)

(e)

(f)

(g)

FIG. 6

wherein the variational range Δ between a peak value of the frequency distribution at the center

portion and a minimum value of the frequency distribution at the edge portions is in the closed

interval of about 8 Hz $\leq \Delta \leq$ 12 Hz (Note: Application of the frequency range of the mask taught

in Ragland (i.e., 90 Hz $\pm$ 20 Hz), to the tension ratio of the center and periphery taught in Suzuki

(i.e., $\sigma 1 = 1.4\sigma 2$), results in a frequency range between the center and periphery that is between

12 Hz and 17 Hz (remembering that frequency is proportional to the square root of tension).

This result takes into account that the maximum central frequency can be 110 Hz (as taught by

the frequency range in Ragland) and the minimum peripheral frequency can be 70 Hz (as taught

by the frequency range in Ragland)).

13.   It would have been obvious to one of ordinary skill in the art at the time the invention

was made to vary the tension in the mask in order to very the frequency of the mask, because the

frequency variation serves to decrease vibration within the mask (Suzuki: [0016]; "by having

such a distribution of tension, the maximum value of displacement of the shadow mask due to its

vibration can be decreased"). Decreasing the vibration within the mask increases picture quality

and makes the cathode ray tube more suitable for commercial use. Further, it would have been

obvious to optimize the range of frequencies between the center and peripheral portions of the

mask to a range of 8 to 12 Hz from a range of 12 to 17 Hz, since it has been held that where the

general conditions of a claim are disclosed in the prior art, discovering the optimum or workable

ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233. Thus, reconstruction is

desirable as taught by the prior art references.

14.   Regarding claims 2 and 11, Ragland and Suzuki teach the invention as explained above

regarding claims 1 and 10 respectively, and Ragland further teaches the frequency distribution

from the edge portions to the center portion is represented by a parabolic formula wherein the

variational range between the frequency distribution at the center portion and the frequency

distribution at the edge portions is at least 8 Hz (e.g., page 1, lines 32-33; "the frame tensions the

mask to have a fundamental resonant frequency of 90 Hz $\pm$ 20 Hz"; Note: Application of the

relationship $\sigma 1 = 1.4\sigma 2$, taught in Suzuki regarding claims 1 and 10, to the above frequency

distribution, results in a frequency distribution between the center and periphery that is between

12 and 17 Hz (remembering that frequency is proportional to the square root of tension and that

the maximum and minimum frequencies within the mask are 110 Hz and 70 Hz respectively).

Said frequency distribution is at least 8 Hz and therefore reads on applicant's claims.).

15.   It would have been obvious to one of ordinary skill in the art at the time the invention

was made to use well known scientific principals to combine the frequency range from Ragland

with the tension ratio from Suzuki to create a frequency distribution between the center and the

periphery of a mask, because the rationale to combine prior art may be reasoned from well

established scientific principles. See MPEP 2144. Thus, reconstruction is desirable as taught by

the prior art.

16.   Regarding claims 3, 7, and 13, Ragland and Suzuki teach the invention as explained

above regarding claims 1, 6, and 10 respectively, and Ragland further teaches the central

frequency distribution ranges from about 92 Hz to about 88 Hz and the peripheral frequency

distributions range from about 76 Hz to about 84 Hz (e.g., page 1, lines 32-33; "the frame

tensions the mask to have a fundamental resonant frequency of 90 Hz ± 20 Hz"; Note: Each of

the above frequency distributions are within the frequency range for the mask set forth in

Ragland. Application of the tension ratio set forth in Suzuki further teaches that the frequency

distribution of the center of the mask is greater than the frequency distribution of the periphery.).

17.   It would have been obvious to one of ordinary skill in the art at the time the invention

was made to optimize the range of the frequency distributions in the center and periphery of the

mask, since it has been held that where the general conditions of a claim are disclosed in the

prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re

Aller*, 105 USPQ 233. Thus, reconstruction is desirable as taught by the prior art references.

18.   Regarding claim 4, Ragland and Suzuki teach the invention as explained above regarding

claim 2, and Ragland further teaches the variational range is not greater than 12 Hz (e.g., page 1,

lines 32-33; "the frame tensions the mask to have a fundamental resonant frequency of 90 Hz ±

20 Hz"; Note: Application of the relationship $\sigma 1 = 1.4 \sigma 2$, taught in Suzuki regarding claim 1, to

the above frequency distribution, results in a frequency distribution between the center and

periphery that is between 12 and 17 Hz (frequency is proportional to the square root of tension

and that the maximum and minimum frequencies within the mask are 110 Hz and 70 Hz

respectively)).

19.   It would have been obvious to one of ordinary skill in the art at the time the invention

was made to optimize the range of frequencies between the center and the periphery of the mask,

since it has been held that where the general conditions of a claim are disclosed in the prior art,

discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*,

105 USPQ 233. Thus, reconstruction is desirable as taught by the prior art references.

20.   Regarding claims 5, 9, and 14, Ragland and Suzuki teach the invention as explained

above regarding claims 1, 6, and 10 respectively, and Ragland further teaches the variational

range is about 10 Hz (e.g., page 1, lines 32-33; "the frame tensions the mask to have a

fundamental resonant frequency of 90 Hz ± 20 Hz"; Note: Application of the relationship $\sigma 1 =$

$1.4 \sigma 2$, taught in Suzuki regarding claim 1, to the above frequency distribution, results in a

frequency distribution between the center and periphery that is between 12 and 17 Hz (frequency

is proportional to the square root of tension and that the maximum and minimum frequencies

within the mask are 110 Hz and 70 Hz respectively)).

21.   It would have been obvious to one of ordinary skill in the art at the time the invention was made to optimize the value of the distribution of frequencies between the center and the periphery of the mask, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). Thus, reconstruction is desirable as taught by the prior art references.

22.   Regarding claim 8, Ragland and Suzuki teach the invention as explained above regarding claim 7, and Ragland further teaches the central frequency distribution is about 90 Hz and the peripheral frequency distributions are about 80 Hz (e.g., page 1, lines 32-33; "the frame tensions the mask to have a fundamental resonant frequency of 90 Hz ± 20 Hz"; Note: Each of the above frequencies are within the frequency range for the mask set forth in Ragland. Application of the tension ratio set forth in Suzuki further teaches that the frequency of the center of the mask is greater than the frequency of the periphery.).

23.   It would have been obvious to one of ordinary skill in the art at the time the invention was made to optimize the value of the frequency in the center and the periphery of the mask, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). Thus, reconstruction is desirable as taught by the prior art references.

Conclusion

24.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to MARY ELLEN BOWMAN whose telephone number is (571)270-5383. The examiner can normally be reached on Monday-Thursday, 6:30 a.m.-5:00 p.m. EST.

25.   If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Kimberly D. Nguyen can be reached on (571) 272-2402. The fax phone number for

the organization where this application or proceeding is assigned is 571-273-8300.

26.   Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would

like assistance from a USPTO Customer Service Representative or access to the automated

information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/M. B./
Examiner, Art Unit 4174

/Jacob Y. Choi/
Primary Examiner